



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,006	12/06/2004	Katsuhiko Araki	L9289.04188	8748

7590 10/19/2006  
Stevens Davis Miller & Mosher  
1615 L Street N W  
Suite 850  
Washington, DC 20036

EXAMINER

CHEN, JUNPENG

ART UNIT	PAPER NUMBER
----------	--------------

2618

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/517,006	<b>Applicant(s)</b> ARAKI ET AL.	
	<b>Examiner</b> Junpeng Chen	<b>Art Unit</b> 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4 and 6 is/are rejected.
- 7) ☒ Claim(s) 1-3, 5 and 7-8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/07/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 371 and 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Information Disclosure Statement*

2. The information disclosure statement submitted on March 07, 2005 has been considered by the Examiner and made of record in the application file.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1,7 and 8** are rejected under 35 U.S.C. 102(b) as being anticipated by **Cudak et al. (U.S. Patent 6,253,063 B1)**.

Consider **claim 1**, Cudak discloses a base station apparatus comprising:

a receiver that receives channel quality information transmitted from a communication terminal apparatus; and a setter that sets a modulation and coding scheme based on a plurality of received pieces of channel quality information (*read as the inherently existing receiving section in the base station 110 communicates the selected initial data rate from the mobile station 107; the inherently existing processing section would select a final data rate based on the initial data rate and the determined different level of interferences condition experienced by mobile station 107 between a time when the initial data rate was selected by mobile station 110 and a time when base station 107 prepares to communicate to mobile station 110, Figure 1 and 2, lines 3-17 of column 2, lines 23-31 of column 3 and abstract*).

Consider **claim 7, as applied to claim 1 above**, Cudak et al. discloses wherein the setter comprises: a comparator that compares with a predetermined threshold, an amount of variation in consecutively received two pieces of channel quality information among the plurality of received pieces of channel quality information; and a determiner that determines a modulation and coding scheme according to a result of comparison (*read as an inherently existing comparator compares a threshold with the determined different level of interference condition, and inherently existing selector in the processing section would select a final data rate, Figure 1 and 2, lines 3-17 of column 2, lines 23-31 of column 3 and abstract*).

Consider **claim 8**, Cudak et al. discloses an adaptive modulation method comprising:

Art Unit: 2631

a receiving step of receiving channel quality information transmitted from a communication terminal apparatus; and a setting step of setting a modulation and coding scheme based on a plurality of received pieces of channel quality information *(read as the inherently existing receiving section in the base station 110 communicates the selected initial data rate from the mobile station 107; the inherently existing processing section would select a final data rate based on the initial data rate and the determined different level of interferences condition experienced by mobile station 107 between a time when the initial data rate was selected by mobile station 110 and a time when base station 107 prepares to communicate to mobile station 110, Figure 1 and 2, lines 3-17 of column 2, lines 23-31 of column 3 and abstract).*

**Claims 1, 3 and 8** are rejected under 35 U.S.C. 102(e) as being anticipated by **Classon et al. (U.S. PGPub 2003/0123559 A1).**

Consider **claim 1**, Classon et al. discloses a base station apparatus comprising: a receiver that receives channel quality information transmitted from a communication terminal apparatus; and a setter that sets a modulation and coding scheme based on a plurality of received pieces of channel quality information *(read as the base station is communicating with a mobile unit, and selects different modulation and coding schemes, along with responsive frequency and time diversity resource allocations, are adaptively selected as a function of level of trustworthiness of channel quality, and channel quality data is averaged over a plurality of subcarriers, Figure 5, abstract and paragraphs 0029]-[0032])).*

Consider **claim 3, as applied to claim 1 above**, Classon et al. discloses a storage that stores the plurality of received pieces of channel quality information (*read as quality information can be accessed as stored data, Figure 7, paragraph 0041*); an acquire that acquires position information indicative of a position of the communication terminal apparatus of the time each of the plurality of received pieces of channel quality information is transmitted; an averaging section that averages the plurality of pieces of channel quality information stored, for each position indicated in the position information acquired; and a determiner that determines a modulation and coding scheme according to the channel quality information averaged (*read as channel quality indicator data, are averaged over a plurality of subcarriers. To assess whether such data, regardless of availability, would likely be trustworthy, the process can consider data such as information that tends to reflect at least a channel coherence time attribute of the transmission target of interest. For example, information regarding a present velocity of the transmission target, a geographic location of the transmission target (such as would serve to indicate that the transmission target is presently located in an urban area with closely located and numerous tall buildings, Figure 5, paragraphs [0029]-[0031])*).

Consider **claim 8, as applied to claim 1 above**, Classon et al. discloses an adaptive modulation method comprising:

a receiving step of receiving channel quality information transmitted from a communication terminal apparatus; and a setting step of setting a modulation and coding scheme based on a plurality of received pieces of channel quality information (*read as the base station is communicating with a mobile unit, and selects different*

Art Unit: 2631

*modulation and coding schemes, along with responsive frequency and time diversity resource allocations, are adaptively selected as a function of level of trustworthiness of channel quality, and channel quality data is averaged over a plurality of subcarriers, Figure 5, abstract and paragraphs 0029]-[0032]).*

**Claims 1 and 8** are rejected under 35 U.S.C. 102(e) as being anticipated by **Miyoshi et al. (U.S. PGPub 2003/0087644 A1)**.

Consider **claim 1**, Classon et al. discloses a base station apparatus comprising:  
a receiver that receives channel quality information transmitted from a communication terminal apparatus; and a setter that sets a modulation and coding scheme based on a plurality of received pieces of channel quality information (*read as base station apparatus sets the transmission rate of a transmit signal for a communication terminal apparatus based on DRC values (read as channel quality) transmitted from that communication terminal apparatus, Figure 15, paragraph [0015] and abstract*).

Consider **claim 8**, Classon et al. discloses a receiving step of receiving channel quality information transmitted from a communication terminal apparatus; and a setting step of setting a modulation and coding scheme based on a plurality of received pieces of channel quality information (*read as base station apparatus sets the transmission rate of a transmit signal for a communication terminal apparatus based on DRC values (read as channel quality) transmitted from that communication terminal apparatus, Figure 15, paragraph [0015] and abstract*).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Miyoshi et al. (U.S. PGPub 2003/0087644 A1)** in view of **Tamura (U.S. Patent 6,907,049 B1)**.



Consider **claim 2, as applied to claim 1 above**, Miyoshi et al. discloses the that base station receives plurality pieces of channel quality information to determine transmission rate but fails to specifically discloses that a judger that judges whether or not a predetermined number of consecutively received pieces of channel quality information are the same among the plurality of received pieces of channel quality information; and a determiner that determines a modulation and coding scheme according to a result of judgment.

However, in related art, Tamura discloses a radio communication apparatus which inherently existing a judger to uses reception BER to determine the stable state of a reception from the mobile station to base station based on channel quality. Specifically, reception BER of a plurality of number of times are compare to see if they are equal to a reception characteristic threshold to determine whether receptions will be performed in a good and stable state, Figure 4 with lines 20-25 of column 8, Figure 10 with lines 25-25 of column 12).

Therefore, it would have been obvious for a person with ordinary skill in the art at the time the invention was made to incorporate the teachings of Tamura into the teachings of Miyoshi et al. for the purpose of determining whether receptions from mobile station to base station will be performed in a good and stable state.

**Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Classon et al. (U.S. PGPub 2003/0123559 A1)** in view of **Tamura (U.S. Patent 6,907,049 B1)**, in further view of **Akiyama et al (U.S. PGPub 2003/0129978 A1)**.

Consider **claim 5, as applied to claim 1 above**, Classon et al. discloses a storage that stores the plurality of received pieces of channel quality information (*read as quality information can be accessed as stored data, Figure 7, paragraph 0041J*); an acquire that acquires position information indicative of a position of the communication terminal apparatus of the time each of the plurality of received pieces of channel quality information is transmitted; an averaging section that averages the plurality of pieces of channel quality information stored, for each position indicated in the position information acquired; and a determiner that determines a modulation and coding scheme according to the channel quality information averaged (*read as channel quality indicator data, are averaged over a plurality of subcarriers. To assess whether such data, regardless of availability, would likely be trustworthy, the process can consider data such as information that tends to reflect at least a channel coherence time attribute of the transmission target of interest. For example, information regarding a present velocity of the transmission target, a geographic location of the transmission target (such as would serve to indicate that the transmission target is presently located in an urban area with closely located and numerous tall buildings, Figure 5, paragraphs [0029]-[0031])*).

However, Classon et al. fails to disclose a judger that judges whether or not a predetermined number of consecutively received pieces of channel quality information

Art Unit: 2631

are the same among the plurality of received pieces of channel quality information; and a comparator that compares with a predetermined threshold, a reception error rate of the received channel quality information; a selector that selects either one from a result of judgment and the channel quality information averaged, corresponding to a result of comparison; and a determiner that determines a modulation and coding scheme according to the either one selected.

Nonetheless, in related art, Tamura discloses a radio communication apparatus which inherently existing a judger to uses reception BER to determine the stable state of a reception from the mobile station to base station based on channel quality. Specifically, reception BER of a plurality of number of times are compare to see if they are equal to a reception characteristic threshold to determine whether receptions will be performed in a good and stable state, Figure 4 with lines 20-25 of column 8, Figure 10 with lines 25-25 of column 12).

Therefore, it would have been obvious for a person with ordinary skill in the art at the time the invention was made to incorporate the teachings of Tamura into the teachings of Classon et al. for the purpose of determining whether receptions from mobile station to base station will be performed in a good and stable state.

However, Classon et al., as modified by Tamura, still fails to discloses that and a comparator that compares with a predetermined threshold, a reception error rate of the received channel quality information; a selector that selects either one from a result of judgment and the channel quality information averaged, corresponding to a result of

Art Unit: 2631

comparison; and a determiner that determines a modulation and coding scheme according to the either one selected.

Nonetheless, in related art, Akiyama et al. discloses an communication method comparing average values of packet error rate shift corresponding to the respective communication modes stored in the table and selecting the communication modes using average value of packet error rate shift as a criterion for judging the communication quality level.

Therefore, it would have been obvious for a person with ordinary skill in the art at the time the invention was made to incorporate the teachings of Akiyama et al. into the teachings of Classon et al., which modified by Tamura, for the purpose of communicating in a more efficient communication mode.

#### ***Allowable Subject Matter***

8. **Claims 4 and 6** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Reason for Allowance***

9. Consider **claim 4, as applied to claim 1 above**, the best references on file from examination, **Classon et al. (U.S. PGPub 2003/0123559 A1)** of **Tamura (U.S. Patent 6,907,049 B1)**, fail to disclose, teach or suggest that a comparator that compares with a

Art Unit: 2631

predetermined threshold, an amount of storage of the stored channel quality information.

Therefore, claim 4 of the present application is considered novel and non-obvious over the prior art and, consequently, is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Consider **claim 6, as applied to claim 2 above**, the best references on file from examination, **Classon et al. (U.S. PGPub 2003/0123559 A1)** of **Tamura (U.S. Patent 6,907,049 B1)**, fail to disclose, teach or suggest that a comparator that compares channel quality information received at a predetermined point in time with channel quality information received later than the predetermined point among the plurality of received pieces of channel quality information; and a varying section that varies the predetermined number corresponding to a result of comparison.

Therefore, claim 6 of the present application is considered novel and non-obvious over the prior art and, consequently, is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kawai, Hiroyuki et al.	US 20030036361 A1	Method and device for transmitting burst signal in mobile communication system,
------------------------	-------------------	---

		information distribution method, and information distribution controller
Todd; Stephen Ross	US 6118773 A	Impairment determination for a diversity antenna selection process
Todd; Stephen Ross	US 6002672 A	Diversity antenna selection

11. Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junpeng Chen whose telephone number is (571) 270-1112. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Art Unit: 2631

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Junpeng Chen  
J.C./jc

October 10, 2006

EDAN ORGAD  
PATENT EXAMINER/TELECOMM.

*E. Orgad 10/11/08*